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The relations between deception, narcissism and self-assessed lie- and truth-related abilities

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Seventy undergraduate students completed the Narcissistic Personality Inventory and the Lie- and Truth Ability Assessment Scale. They were then asked to share 100 points with an anonymous fellow student who was unaware of the amount of points designated for distribution. Participants were asked to allocate points to the other student bearing in mind that the transaction will be completed only if the other party accepts their offer. Participants' goal was to retain as many points as possible, and for this end, they were permitted to tell the other person that fewer than 100 points were available for distribution. Both narcissistic features and lie-telling ability assessments predicted actual deception. Results suggest that the dominance of the truth telling bias is limited in a situation where no concrete victim is harmed by dishonesty. Self-assessed lying ability and features of narcissistic personality further challenge the intuitive truth telling model.

Keywords: concealment; deception; narcissism; self-assessed lie-telling ability; ultimatum game.

The cognitive theory of lying suggests that truth-telling is the dominant intuitive response because lying is more complex and requires exertion of additional cognitive effort (Vrij, Fisher, Mann, & Leal, 2006). Specifically, telling a lie is believed to be a difficult task whereas telling the truth is believed to be a simple matter of 'telling it like it is' (Buller & Burgoon, 1996). Hence, it is to be expected that difficult lies and simple truths are more available than easily formulated lies or difficult-to-discern truths (DePaulo et al., 2003). The 'illusion of transparency' (Gilovich, Savitsky, & Medvec, 1998) contributes another explanation for truth-telling dominance. It suggests that people tend to think or feel that their emotions are obvious to other people. Accordingly, people tend to believe that while their truths shine through, lies are easily detected (Vrij, 2008). Further support for truth-telling dominance comes from reaction time studies that found faster reactions when people were instructed to tell the truth than when they were instructed to tell lies (Suchotzki, Verschuere, Van Bockstaele, Ben-Shakhar, & Crombez, 2017). Furthermore, when distracted by a demanding memory task, people tended to lie less frequently than when the distracting task was less demanding (Van't Veer, Stel, & Van Beest, 2014). Finally, time pressure was found to interfere with lying but not with truth-telling (Capraro, 2017).

People also appreciate truth-telling and feel that their ability to tell the truth convincingly is more important than their ability to tell lies, detect lies or believe truthful

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messages. Studies on self-assessed lie- and truth-related abilities have shown that people tend to rate themselves highly on the ability to tell the truth convincingly. In contrast, the ability to tell convincing lies is rated no better than the ability of others (Ekman & O'Sullivan, 1991; Elaad, 2019). Finally, people indicate that their feelings would be severely hurt if other people question their truthful messages, but that people are less hurt when their lies are disbelieved (Elaad, 2015).

Still, people differ in whether they value lies as good or bad. Some people view lies as utterly unacceptable and refrain from lying. Others, who view lies as a means for effective engagement in social interactions and use them frequently, may attribute positive valence to lie-telling (Oliveira & Levine, 2008). The Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness to Experience (HEXACO) model of personality (Ashton, Lee, & Son, 2000) suggests that, besides the Big 5 personality traits, there is an additional personality factor that concerns one's moral and social values.

Recent work supports the idea that most lies are told by a small number of people who are frequent liars (Halevy, Shalvi, & Verschuere, 2014). Halevy et al. (2014) found that frequent lying was associated with higher scores on psychopathic trait measures. This is not surprising given that psychopaths are manipulative, callous and egocentric individuals, frequently involved in immoral, violent and criminal actions (Hare, 2006). In line with Halevy et al.'s findings, Elaad and Reizer (2015) observed that self-assessed ability to tell lies successfully is negatively associated with conscientiousness. Recently, reported lying and the self-assessed ability to tell lies have been associated with another personality structure –narcissism (Zvi & Elaad, 2018).

Narcissism

Like psychopathy, narcissism is considered a predictor of violence and aggression and is an important personality construct in forensic contexts (Kohut, 1978; Larson, Vaughn, Salas-Wright, & Delisi, 2015). Narcissism is a multifaceted personality construct typified by a sense of entitlement, empathy deficits and grandiosity. Narcissists are exploitative and see others as a tool for satisfying their needs. They need to be admired by others and expect to receive preferential treatments from them. Yet, despite their unrealistic sense of superiority, narcissists' self-esteem is fragile and vulnerable, and they may respond with fury and hostility when their ego is threatened (Kohut, 1978; Krizan & Herlache, 2018; Ostrowsky, 2010; Raskin & Terry, 1988; Sadock, Sadock, & Ruiz, 2015). Using the six-factor HEXACO model, narcissists score low on the honesty–-humility dimension, reflecting low levels of sincerity, fairness, greed avoidance and modesty (Lee & Ashton, 2005; Muris, Merckelbach, Otgaar, & Meijer, 2017).

Narcissists are predisposed to anti-social behavior, as indicated by their overrepresentation among criminals and prison inmates (Bushman & Baumeister, 2002; Larson et al., 2015). Nevertheless, narcissism can also be adaptive. The narcissism spectrum model (Krizan & Herlache, 2018) reflects a spectrum approach that conceptualizes narcissism on a continuum of narcissistic trait expression intensity. The continuum encompass both normal and pathological behaviors.

A number of investigations described a positive association between narcissism and reported lying or unethical behavior in everyday-life situations (Azizli et al., 2016; Baughman, Jonason, Lyons, & Vernon, 2014; Jonason, Lyons, Baughman, & Vernon, 2014; Oliveira & Levine, 2008), as well as between narcissism and positive attitudes towards deceptive communication (Oliveira & Levine, 2008). It seems that narcissistic individuals also believe themselves to be better liars than the average person (Giammarco, Atkinson, Baughman, Veselka, & Vernon, 2013; Zvi & Elaad, 2018), when asked. Such self-report measures of dishonesty and lying may be

biased by various internal and external factors, as human perception is inherently biased (e.g. Dror & Murrie, 2018; Shechory-Bitton & Zvi, 2016, 2019). Specifically, estimates of lying may not be valid, and reported lying behavior should be treated with caution. This may be particularly true with respect to narcissistic individuals.

Although all people may be biased to think well of themselves (Alicke & Sedikides, 2009), this desire is far greater among narcissists and may be manifested in an unrestrained disdain for others and disregard of considerations of prudence and realism. Clinical accounts of narcissism (e.g. Kernberg, 1975; Kohut, 1971) concur that narcissistic individuals are marked by unrealistic and exaggerated beliefs about their abilities and achievements (John & Robins, 1994). From a theoretical perspective, narcissists' self-enhancement is a self-regulatory strategy to maintain self-esteem by using cognitive distortions to inflate views of the self and a sense of superiority (Morf & Rhodewalt, 2001). Baumeister and Vohs (2001) extended Morf and Rhodewalt's (2001) analysis by stating that narcissism may be considered as an addiction to esteem. Unlike average individuals, narcissists continue to self-enhance even when they know they will later be held accountable for their self-ratings (Sedikides, Herbst, Hardin, & Dardis, 2002) or even when they are aware that their self-ratings will cause the alienating of those around them (Campbell, Reeder, Sedikides, & Elliot, 2000).

A series of studies shows that narcissists tend to self-enhance desirable traits (e.g. intelligence, creativeness and physical attractiveness; see Grijalva & Zhang, 2016, for a review). Interestingly, narcissists do not see themselves as more moral than others, suggesting that they do not value morality. Grijalva and Zhang (2016) noted that narcissists may view communal characteristics as a sign of weakness and vulnerability.

It follows that narcissists may overestimate their lie-telling ability and report frequent lying merely because they tend to self-enhance desirable abilities. Specifically, narcissists' self-assessments of their lying abilities and self-reports of lying may not be valid indicators of their actual lying behavior.

Unfortunately, most lie-related studies focus on the effects of actual lie-telling and lie-detection abilities in various social interactions, neglecting subjective lie- and truth-related ability assessments (e.g. Halevy et al., 2014; Serota & Levine, 2015; Serota, Levine, & Boster, 2010). However, studying how people judge their own skills is important because such perceptions influence cognition, behavior and emotions (see Bandura's, 1977, self-efficacy theory). Following Bandura (1977), we study people's self-assessed lie- and truth-related abilities: their ability to convince others that they are telling the truth, their ability to identify when others are truthful or untruthful, and their ability to lie successfully to others (e.g. Elaad, 2015). Our aim in the present study was to extend the limited empirical research on narcissism and perceived ability to tell lies convincingly, in comparison to actual deceptive behavior.

To measure actual deception, we used a new and never-before studied version of the ultimatum game (Kahneman, Knetsch, & Thaler, 1986). In the original version of the game, participants received 100 cents to allocate between themselves and a game partner. Participants did not know the identity of their game partner and were free to allocate the money in any manner they wished. However, they were told that if their game partner rejected their offer, neither the participant nor the game partner would receive any money. This version of the ultimatum game was used to study prosocial behavior (Nehrlich, Gebauer, Sedikides, & Schoel, 2019). For the purpose of the present study, the original ultimatum version was altered to measure deception. We replaced money with points and added a new goal: to retain as many points as possible. To this end, participants were permitted to lie and inform their virtual partner that

fewer than 100 points were available for distribution. The number of concealed points serves as a measure of deception (i.e. the larger the concealed number of points, the more compelling the deception).

A recent meta-analysis on intuitive honesty and dishonesty (Kobis, Verschuere, Bereby-Meyer, Rand & Shalvi, 2019) indicated that people intuitively engage in more dishonesty when no concrete victim is harmed by it, and where no threat of punishment exists. In such settings, self-serving lies are preferred by more people, who tend to lie more than when a concrete person is harmed by dishonesty. In contrast, when dishonesty harms concrete others, no intuitive dishonesty effect was found. The setting of the present study is expected to encourage lying because it defines a situation in which self-serving lies affect an anonymous other.

Finally, many studies refer to narcissism as a unified construct and use global measures. Yet, narcissism may be better examined at the facet level (Ackerman et al., 2011). Ackerman et al. (2011) suggested three narcissistic subscales that best describe narcissism: Leadership/Authority, which captures feelings of superiority and desire for power, and is also considered an adaptive form of narcissism; Entitlement/Exploitativeness, which measures entitled beliefs and exploitative behaviors, which is considered maladaptive and even as 'socially toxic' narcissism; and Grandiose Exhibitionism, which describes vanity and exhibitionism, which is considered a slightly less maladaptive facet of narcissism.

In summary, evidence suggests that truth-telling dominance is undermined when no concrete victim is harmed by the dishonest behavior, when senders possess narcissistic tendencies and when senders assess highly their lie-telling ability. The goal of the present study was to examine the association between global narcissistic score, three narcissistic facets, self-assessed lying and truth-telling abilities, and actual deception in the ultimatum game.

Our hypotheses are:

1. In line with earlier accounts (e.g. Elaad, 2019) we hypothesize that truth-telling ability will be rated higher than all other lie- and truth-related abilities while the ability to tell convincing lies will be rated no better than average and lower than other abilities.
2. Narcissism scores will be no better than average. As to the three facets of narcissism, it may be assumed that most of our student sample has adaptive personality traits. Therefore, high scores on Leadership/Authority and low scores on Entitlement/Exploitativeness are expected.
3. Self-assessed lying ability will predict deception in the ultimatum game. No other self-assessed lie- or truth-related ability will predict deception.
4. Based on earlier accounts (e.g. Zvi & Elaad, 2018), global narcissism scores will correlate positively with deception. At the facet level (Ackerman et al., 2011), all three narcissistic subscales will predict deception.

Method

Statistical power and participants

The present sample consisted of 70 undergraduate students (28 females) with a mean age of 24.6 years ($SD = 3.3$), who volunteered to participate in the study. Participants were promised anonymity and were entitled to terminate their participation in the study at any time without penalty. They completed the questionnaires individually, and upon completion they were debriefed about the purpose of the study. The sample size was determined by a GPower analysis that showed that a sample of 66 participants would be sufficient to detect an anticipated small to medium effect size ($f^2 = 0.12$) with a power of .8 and $\alpha = .05$. The anticipated effect size was extracted from a recent study that correlated narcissistic

features and lie- and truth-related abilities (Zvi & Elaad, 2018).

Materials

Narcissistic Personality Inventory

The Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979; Raskin & Terry, 1988) was used in the present study. On the NPI, respondents rated 40 items on a 5-point scale ranging from 1 (*not at all true)* to 5 (*very much true*). Examples of NPI statements are: *'I like to look at myself in the mirror'; 'I am an extraordinary person';* and *'I find it easy to manipulate people'*.

The NPI is based on the *Diagnostic and Statistical Manual* (*DSM*) definition for narcissistic personality disorder, yet it was designed for nonclinical populations Emmons (1987). It measures narcissism along a continuum, in which extreme expressions represent pathological narcissism and less extreme forms reflect narcissism as a normal personality trait (Emmons, 1987; Morf & Rhodewalt, 2001). The NPI is the most widely used and thoroughly researched measure of narcissism and is most suitable for capturing diverse expressions of narcissism (e.g. Muris et al., 2017).

Traditionally, the NPI is analyzed by its global score. It has, however, been suggested that correlates of narcissism should also be examined at the facet level (Ackerman et al., 2011). We therefore added Ackerman et al.'s (2011) three subscales to the current analysis: Leadership/Authority (11 items), Grandiose Exhibitionism (10 items) and Entitlement/ Exploitativeness (4 items).

Lie- and Truth Ability Assessment Scale (LTAAS)

The lie–truth ability assessment scale (LTAAS: Zvi & Elaad, 2018) was used in the present study. The scale comprises 16 items pertaining to four communication abilities: to tell lies persuasively *(e.g. In comparison with other people, how would you rate your ability at lying to your peers without getting caught?)*; to detect lies accurately *(e.g. In comparison with other people, how would you rate your ability to detect lies?*); to tell truths convincingly *(e.g. Relative to the average person, how good are you at convincing people to believe you when you are telling the truth?)*; and to detect truths of other people *(e.g. In comparison with your close acquaintances, how good are you at believing others?)*. Participants are asked to rate their abilities relative to specific others or to an average person, on a scale ranging from 0 *(much less than others)* to 100 *(much better than others)*, with *50 (as good as others)* serving as a midpoint anchor. The scale was developed from earlier single-item tests (e.g. Elaad, 2018) to expand the examples to which the four lie- and truth-related abilities can be applied and to ensure adequate reliability values of the various items. In the final version of the scale, each lie–truth ability was measured on four items: one of the four original items and three new items.

Procedure

Approval for the present experiment was obtained from the ethics committee of Ariel University. Participants were approached individually by a female experimenter and gave their oral consent to participate in the study. Then they were told that the study was designed to learn more about sharing tactics. Participants were asked for their name, gender, age and level of religiosity and signed a consent form indicating their agreement to participate in the study. The consent form stated that participants were guaranteed anonymity and could terminate their participation in the study at any time.

They were then asked to complete the NPI and the LTAAS, in that order. There was no time limit for completing these inventories.

Finally, participants played a modified version of the original ultimatum game (Kahneman et al., 1986), which manipulates

Table 1. Statistics of self-assessed abilities to tell and detect lies and truths.

	Mean	*SD*	95% CI	Cronbach's α
Tell lies	56.0	25.9	[49.8, 62.2]	.93
Detect lies	61.0	17.6	[56.8, 65.2]	.80
Tell truths	69.6	16.5	[65.7, 73.5]	.75
Detect truths	61.6	14.2	[58.2, 65.0]	.59

Note: $N = 70$. CI = confidence interval based on standard error units.

deception. Each participant received the following instructions:

> *In this experiment you are matched at random with another participant – call him or her X. You will not know who X is. A sum of 100 points is allocated to both of you. Only you know that this is the number of points to be shared. X does not know the number of points and therefore has no idea what a fair division would be. You should propose a number of points to give X, bearing in mind that the deal will be completed only if X accepts your offer. Your goal is to keep as many points as possible for yourself (see the success rates below). To this end, you may inform X that the number of points to be shared is less than 100. If your offer is accepted by X, both of you will receive the agreed points. In addition, you will receive the points you concealed from X. If X rejects your offer, neither of you will receive any points, and both of you will be declared losers. Keep in mind that X cannot suggest a different division of the points and can only accept or reject your offer.*
>
> *To ensure you understand the rules, please answer the following two questions before continuing:*
>
> *Assuming the number of points that you have decided to share with X is 80.*
>
> 1. *If you offer 30 points to X, and X accepts your offer, you receive _____ points and X receives _____ points.*
> 2. *If you offer 30 points to X, and X rejects your offer, you receive _____ points and X receives _____ points.*
>
> *Now, you must decide what to offer X. Below, enter the best offer that you believe is likely to be accepted by X.*
>
> *The number of allocated points for sharing is _____. I keep _____ points for myself and offer X _____ points. (the final two numbers should equal the number of allocated points).*

Performance in the game is based on the number of points attained at the end of the game as follows: Excellent, 90–100 points; Very good, 80–89 points; Good, 70–79 points; Fair, 60–69 points; Poor, 50–59 points; Fail, less than 50 points. The performance evaluation was presented to participants on the instruction sheet.

Results

Narcissism and self-assessed lie–truth abilities

The means, standard deviations, confidence intervals and reliability of the participants' self-assessed lie–truth abilities were computed and are presented in Table 1. Table 1 shows that participants overestimated their lie-detection, truth-telling and truth-detecting abilities (the lower bound of the 95% confidence interval, CI, is greater than the midpoint 50). This is consistent with previous results (e.g. Elaad, 2011; Elaad et al., 2012; Zvi & Elaad, 2018) indicating that people gave high self-assessments to their truth-telling, truth-detection and lie-detecting abilities. In previous studies,

Table 2. Statistics of narcissism total scores and subscale scores.

	M	*SD*	95% CI	Cronbach's α
Narcissism	3.05	0.59	[2.77, 3.33]	.93
Leadership/Authority	3.31	0.58	[3.17, 3.45]	.72
Grandiose Exhibitionism	2.95	0.79	[2.77, 3.14]	.85
Entitlement/Exploitativeness	0.97	0.21	[0.94, 1.02]	.58

Note: $N = 70$. CI = confidence interval based on standard error units.

participants' self-assessed ability to tell lies persuasively varied, and in several studies it was significantly underestimated (Elaad, 2018). In the present study, the mean self-assessed lie-telling ability is unbiased. Table 1 further presents the relatively low reliability score for truth-detection, which departs from results of previous studies (e.g. Zvi & Elaad, 2018).

A one-way analysis of variance (ANOVA) with repeated measures was conducted to test Hypothesis 1. The aim was to examine the differences between all four lie–truth ability self-assessments. After correcting for sphericity ($\varepsilon = .75$), a significant overall ability effect, $F(1, 69) = 4.7$, $p = .034$, $\eta^2_p = .06$, emerged, suggesting substantial differences in the assessments of the various abilities. As the lie-telling ability was typically rated lower than the other abilities (Elaad, 2009, 2015), a planned orthogonal Helmert contrast was performed to compare the lie-telling ratings with the mean ratings of the remaining three abilities. The difference is significant, $F_{(1, 69)} = 7.9$, $p = .006$, $\eta^2_p = .10$, thus supporting our hypothesis.

In line with the intuitive truth-telling model, the truth-telling ability is often assessed higher than lie-detecting and truth-detecting abilities. A second planned Helmert contrast was employed to compare truth-telling ratings with the remaining two ability ratings. As hypothesized, a significant difference emerged, $F(1, 69) = 27.0$, $p < .001$, $\eta^2_p = .28$, indicating that the overall ability difference rests also on the high self-assessments of truth-telling ability. Finally, no significant difference emerged when lie-detection and truth-detection abilities were contrasted, $F(1, 69) = 0.05$.

Table 2 displays similar statistics for the narcissism scores. In support of Hypothesis 2, the table shows extremely low Entitlement/Exploitativeness means, and the upper bound of the 95% CI is smaller than the lower bounds computed for the remaining two subscales. Note that the reliability score computed for Entitlement/Exploitativeness is also relatively low.

The current sample of students may account for these results, as being a student may imply some degree of adaptive personality traits (e.g. the ability to learn and to socially interact with people).

The contribution of self-assessed ability ratings and narcissism scores to deception

Deception was defined as the difference between the sum of available points (100) and the amount of points to be distributed. Deception ranged from 0 to 100. To test Hypothesis 3, correlations between self-assessed ability ratings and deception scores were computed. The following correlations were obtained: lie-telling ability assessments, $r_{(70)} = .338$, $p = .004$; lie-detecting ability assessments, $r_{(70)} = -.009$; truth-telling ability assessments, $r_{(70)} = .076$; and truth-detecting ability assessments, $r_{(70)} = .055$. Only lie-telling ability assessments show a significant association with deception.

A multiple regression model was used to examine how self-assessed abilities predict

Table 3. Statistics describing narcissistic predictions of the four self-assessed lie/truth abilities.

	β	*t*	*p*
Tell lies			
Narcissism	.389	3.48	.001
Leadership/authority	.298	2.54	.012
Grandiose exhibitionism	.400	3.60	.001
Entitlement/exploitativeness	.317	2.76	.007
Detect lies			
Narcissism	.492	4.66	<.001
Leadership/authority	.459	4.26	<.001
Grandiose exhibitionism	.477	4.47	<.001
Entitlement/exploitativeness	.407	3.67	<.001
Tell truth			
Narcissism	.469	4.38	<.001
Leadership/authority	.403	3.64	.001
Grandiose exhibitionism	.385	3.44	.001
Entitlement/exploitativeness	.455	4.21	<.001
Detect truth			
Narcissism	.199	1.68	.098
Leadership/authority	.140	1.16	.248
Grandiose exhibitionism	.139	1.16	.250
Entitlement/exploitativeness	.252	2.15	.035

Note: $N = 70$.

deception in the ultimatum game. The deception score was entered as the dependent variable and the four self-assessed ability scores as independent variables. The hierarchical regression model predicted deception, significantly, $F(4, 65) = 3.01$, $p = .024$, and accounted for 15.6% of the variance. The lie-telling ability assessment was the only significant predictor of deception, $\beta = .452$, $t = 3.38$, $p = .001$. All other lie/truth ability assessments did not reach significance.

To examine Hypothesis 4, a linear regression analysis was performed for the total narcissism score. The analysis indicated that narcissism accounted for 15.6% of the variance, and the predicted deception is significant, $\beta = .395$, $t = 3.54$, $p = .001$. Specifically, higher levels of narcissism explained increased deception in the ultimatum game.

Next, each of the three subscales of narcissism was correlated with deception. Leadership/Authority, Grandiose Exhibitionism and Entitlement/Exploitativeness displayed correlations with deception of: $r_{(70)} = .401$, $p = .001$; $r_{(70)} = .358$, $p = .002$; and $r_{(70)} = .310$, $p = .009$, respectively. The respective percentages of explained variance were 16.1%, 12.8% and 9.6%. All three narcissistic dimensions predicted deception.

The contribution of narcissism to self-assessed ability ratings

The present study allows a re-examination of the link between self-assessed lie-telling ability scores and narcissistic traits. In line with previous reports (e.g. Giammarco et al., 2013; Zvi & Elaad, 2018) lie-telling ability assessments should correlate positively with narcissism.

The linear regression model for predicting the self-assessed lie-telling ability from the global narcissism score was significant, $F(1, 68) = 12.12$, $p < .001$, and accounted for 15.1% of the variance. Results of similar linear

regression analyses computed for each narcissistic subscale appear in Table 3. It is evident that all three narcissistic subscales contributed significantly to the self-assessed lie-telling ability.

Specifically, higher levels of Leadership/Authority, Grandiose Exhibitionism and Entitlement/Exploitativeness contributed significantly to the lie-telling ability assessment.

Similar linear regression analyses were performed for the remaining ability assessments. A significant linear regression model for predicting self-assessed lie detection from the global narcissistic score, $F(1, 68) = 21.73$, $p < .001$, accounted for 24.2% of the variance. Specifically, higher levels of Leadership/Authority, Grandiose Exhibitionism and Entitlement/Exploitativeness contributed to the self-assessed lie-detecting ability (Table 3).

A significant linear regression model for predicting the truth-telling ability from the global narcissism scores, $F(1, 68) = 19.15$, $p < .001$, accounted for 22.0% of the variance. Table 3 shows that all three narcissistic subscales contributed significantly to the truth-telling ability assessments.

Finally, no significant linear regression model for predicting truth-telling assessments from the global narcissistic scores, $F(5, 168) = 2.81$, $p = .1$, was obtained. Table 3 indicates that only Entitlement/Exploitativeness contributed to higher self-assessed truth-detection ability ratings.

In summary, results show a strong link between self-assessed lie- and truth-related abilities and narcissism. It seems that these abilities are aligned with narcissistic needs.

Discussion

The cognitive theory model of lying suggests dominance of truth-telling over lying. However, when no concrete victim is harmed by the dishonest behavior, truth-telling dominance decreases, and an intuitive-dishonesty effect emerges (Kobis et al. 2019). Intuitive dishonesty is also enhanced by narcissism and by high self-assessments of lie-telling ability. Measures of actual dishonest behavior in the new ultimatum game demonstrated that when harm was inflicted on a virtual person, there was a strong link between self-interest of people with narcissistic features and self-confidence in their lying ability, and increased lying. Specifically, participants with higher narcissism scores concealed more points from their virtual game partner.

This finding is in line with previous findings of narcissistic dishonesty based on self-report measures (e.g. Zvi & Elaad, 2018), in which narcissism was found to be associated with reports of more lies or unethical behavior in various everyday-life situations (Azizli et al., 2016; Baughman et al., 2014; Jonason et al., 2014) and with positive attitudes towards deceptive communication (Oliveira & Levine, 2008).

Furthermore, the three subscales of the NPI – Leadership/Authority, Grandiose Exhibitionism and Entitlement/Exploitativeness (Ackerman et al., 2011) – were found to be good predictors of deception. Leadership/Authority is associated with normal narcissism and with adaptive features such as adjustment, social potency and psychological health. This narcissism subscale captures confidence, assertiveness and beliefs of leadership potential and is positively correlated with self-esteem and other adaptive self-enhancement tendencies. High Leadership/Authority scorers concealed more points from the other player than lower scorers. This finding may be the result of high Leadership/Authority scorers' motivation to use the self-enhancing experience of the experiment to achieve social dominance.

Entitlement/Exploitativeness appears to have consistent associations with pathological narcissism (Ackerman et al., 2011). High Entitlement/Exploitativeness scorers possess lower self-esteem and exhibit lower levels of empathy and social desirability as well as a lack of concern for others. Entitled beliefs and lack of empathy may explain why these

participants tended to exploit others by concealing points in the ultimatum game. Participants who scored high on the Grandiose Exhibitionism scale also concealed more points from the other player than did lower scorers. Grandiose Exhibitionism captures the need to be the center of attention, to boast and to be complimented, features that may account for the motivation to optimize success in the ultimatum game.

The various dimensions of narcissism represent different motivations for deception aimed at satisfying practical (i.e. gaining profit) and emotional (i.e. feeling superior to others, promoting positive self-image or be complimented) narcissistic needs. These motivations for deceptive behavior reflect both adaptive and maladaptive narcissistic features.

Furthermore, the present results replicate and extend previous results that support a link between narcissism and lie-telling ability assessments. Giammarco et al. (2013) reported that narcissistic individuals believe themselves to be better liars than the average person, a result that was more recently supported by Zvi and Elaad (2018).

Lie-telling ability was assessed significantly lower than the remaining three lie- and truth-related abilities and was the only ability that was not rated above average. This finding can be explained by the association between lying and dishonesty. People who ascribe negative valence to lies may underestimate their lying ability to maintain a positive self-image. Nevertheless, some earlier studies (see Elaad, 2018, for a review) reported higher than average lie-telling assessments, a finding that is consistent with the tendency to consider lying as a positive quality that may serve a person well in social contexts (Kashy & DePaulo, 1996). People in occupations that require lying skills, such as police interrogators, criminal prosecutors, salespersons, actors and many others, are expected to raise their lie-telling ability assessments. Alternatively, a process of self-selection may be activated when people are applying for a job that requires above-average lie-telling skills. Specifically, people who consider themselves good liars are likely to apply to such occupations. However, more research is required to better understand how people perceive their lie-telling ability.

In line with the truth-telling dominance model, and consistent with previous results (Elaad, 2019), the self-assessed truth-telling ability emerged as the highest rated ability. People are confident in their ability to be convincing when telling the truth, since telling the truth is a simple matter of 'telling it like it is' (e.g. Buller & Burgoon, 1996), and telling the truth is cognitively simpler than lying (Gamer, 2011; Verschuere & In 'T Hout, 2016; Vrij et al., 2006). The relatively high rating of the truth-telling ability can also be explained by the general assumption that people often tell the truth and are proud of it. Therefore, people are anxious to be believed and are confident that there is no reason for other people to doubt their truths.

People are less confident about their ability to convince others to believe their lies (Elaad, 2019). Nevertheless, there are people who rate their lie-telling ability above average. Such people used their supposed lying skill to harm abstract others in the new version of the ultimatum game. Specifically, the present results indicate that highly rated lie-telling abilities limit truth-telling dominance.

Research limitations and suggestions for future research

This is a correlational study. Therefore, the associations between narcissism, the lie- and truth-related ability scales, and ultimatum game performance are based on a cross-sectional design, and the direction of influence cannot be inferred with certainty. The task of future research is to resolve this issue.

Our ultimatum game presented an abstract victim, a student called X. This feature of the game allows participants to imagine any possible 'victim' (e.g. male or female, from the same class or from a different class, religious or secular, acquainted or stranger). While we

know that this procedure is adequate for limiting the truth-telling bias, it is also possible that an underlying third variable exists. Slessor, Phillips, Ruffman, Bailey, and Insch (2014) showed that individuals tended to trust those in their own age group. It follows that demographic variables such as age, gender, religiosity or professional expertise in lie-telling and lie-detection might increase or moderate the link between narcissistic traits, perceived lie/truth abilities and ultimatum game performance.

It is also possible that suspiciousness is more prevalent in some cultures than in others (Hofstede & Bond, 1988). It follows that other contextual factors such as norms or expectations may also moderate the association between narcissism, perceived lie- and truth-related abilities, and lying.

Finally, social desirability and self-presentation may undermine the validity of participants' lie- and truth-telling ability assessments. Nevertheless, in the present study participants apparently believed their ability estimates and allowed them to guide their actions.

Concluding remarks

The present results contribute to our understanding of intuitive lying behavior by providing evidence of the associations between deceptive behavior and both narcissistic traits and self-assessed lying ability. For the purpose of the present study, the original ultimatum game was modified, allowing participants to practice a unique mode of deception, deceiving an anonymous target person, which impairs the dominance of truth-telling over lying.

Ethical standards

Declaration of conflicts of interest

Eitan Elaad has declared no conflicts of interest.
Shani Ben Hanania has declared no conflicts of interest.
Shachar Mazor has declared no conflicts of interest.
Liza Zvi has declared no conflicts of interest.

Ethical approval

All procedures performed in the present study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study

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